Prep for future LIS-WRF runs ...

This thread is locked knemunai 50 posts since

Apr 16, 2008 In the near future I would like to run LIS-WRF. At this point I simply want to spin-up the Noah LSM for 3 nested domains for some coupled and uncoupled simulations down the road. I have a few questions regarding prep work for the future runs I want to do:

1. Other than define INC_WATER_PTS in misc.h, is there anything else that needs to be modified before starting my spin-up for future coupled runs?

2. I noticed a lat-lon projection was added to WRFv3, are there any reasons to not use this projection for coupled runs (other than plotgrids.exe not working - my domain is restricted to the continental US with the inner most domain being inside Oklahoma)?

3. Is there a particular version of vanilla WRF I should be running (v2.2 vs v3) in the meantime?

Thanks in advance,

Kodi Tags: lis, wrf, requirements

sujay *118 posts since*
Sep 20, 2007 1. **Re: Prep for future LIS-WRF runs** Aug 24, 2008 8:41 PM

Kodi,

1. That should be sufficient

2. Currently, the coupled LIS-WRF includes LIS version 5.0 and WRF version 2.2.1. The coupling to WRFv3 is currently in process, but will not be available in the near future. So you need to use one of PS/LC/MERC projections.

3. See 2 above.

Hope this helps,

-S

knemunai *50 posts since*
Apr 16, 2008 2. **Re: Prep for future LIS-WRF runs** Aug 25, 2008 11:26 AM

in response to: sujay Thanks Sujay. One last bit of confusion regarding LIS including water points: Do these included water points only account for lakes? Or do they include ocean points too? I'm just trying to wrap my head around how exactly LIS-WRF works to see if there need to be any special considerations taken into account when defining my nested domains.

-Kodi

sujay *118 posts since*
Sep 20, 2007 3. **Re: Prep for future LIS-WRF runs** Aug 25, 2008 12:40 PM

in response to: knemunai Kodi,

Right now, our mask data is not sophisticated enough to distinguish between a lake and an ocean. Either way no special processing is done on the water points (such as running a lake model, for example.)

-S

knemunai *50 posts since*
Apr 16, 2008 4. **Re: Prep for future LIS-WRF runs** Aug 25, 2008 12:54 PM

in response to: knemunai I thought of another question. The STATSGO soils have the visible portions of Mexico and Canada as a single soil type. For coupled runs, should I be sure to not include those areas in my coarse domain? Or does it not matter that much since the inner most domain is what I really care about?

Thanks,

Kodi

sujay *118 posts since*
Sep 20, 2007 5. **Re: Prep for future LIS-WRF runs** Aug 26, 2008 2:02 PM

in response to: knemunai STATSGO data is NOT supposed to be used outside the US. So if your domain includes areas outside the US, then you should use the FAO data.

knemunai *50 posts since*
Apr 16, 2008 6. **Re: Prep for future LIS-WRF runs** Aug 26, 2008 3:34 PM

in response to: sujay I ran across a PowerPoint presentation from 2007 that was about the LIS-WRF testbed and included slides on IHOP LIS Spin-ups and LIS-WRF simulations (attached). One of the earlier slides in the presentation showed the 4 domains (slide 3) and the spin-up slide (slide 15) mentioned using STATSGO with NLDAS and GDAS forcing. How were the STATSGO runs done? Domains 1 and 2 both extended into Mexico (based on slide 3). Can someone elaborate so I can make sure I do this the best way possible? Is there a preprint for this presentation?

Thanks in advance,

Kodi **Attachments:**

- Peters-Lidardelal2007_LISWRF.ppt (4.1 MB)

sujay *118 posts since*
Sep 20, 2007 7. **Re: Prep for future LIS-WRF runs** Aug 27, 2008 10:42 AM

in response to: knemunai I didn't see a picture of a domain in slide 3. Anyways, I believe these runs were conducted with an inner 1km nest centered around IHOP and a coarser outer nest (3km), which is still in the US. I do not think the domains extended outside the US. Can you please tell me which slide you are looking at?

-S

knemunai *50 posts since*
Apr 16, 2008 8. **Re: Prep for future LIS-WRF runs** Aug 27, 2008 10:53 AM

in response to: sujay I assumed the blue image in the upper right portion of slide 3 under "Coupled or Forecast Mode" was the domain configuration used.

knemunai *50 posts since*
Apr 16, 2008 9. **Re: Prep for future LIS-WRF runs** Aug 28, 2008 5:50 PM

in response to: knemunai I've read online that other modeling studies have used a STATSGO/FAO hybrid for soil texture to fix the "other" classification for Mexico and Canada in STATSGO. Has anyone ever done this? Is there a way to do this in LIS with nests using the clay, sand, and silt fractions (use FAO for largest nest and STATSGO for those that do not cross into Canada and Mexico)?

Thanks in advance,

Kodi

sujay *118 posts since*
Sep 20, 2007 10. **Re: Prep for future LIS-WRF runs** Aug 29, 2008 8:58 AM

in response to: knemunai Yes. You can configure lis to use FAO for the larger nest, and STATSGO for the inner nest.

-S

jonc *33 posts since*
Sep 20, 2007 11. **Re: Prep for future LIS-WRF runs** Sep 2, 2008 3:34 PM

in response to: knemunai

Hi Kodi,

Before Chuck Alonge left GSFC, he pointed me to a merged, global FAO+STATSGO 1-km datafile, the same as the one that NCAR uses for WRF. All you do is run the LIS pre-processor on this dataset, and it will create the resolution datafile needed for your experiments. That way, you will always be using the STATSO over the U.S., and then revert to FAO outside the U.S. This is a soil TEXTURE database, so you would set use texture=1.

Discover is currently locked up. Once it is unlocked, I will post the location of where I have this 1-km file.

Jon

jonc *33 posts since*
Sep 20, 2007 12. **Re: Prep for future LIS-WRF runs** Sep 3, 2008 9:54 AM

in response to: jonc

Hi Kodi,

I have the merged STATSGO+FAO texture file in /home/jonc/LIS_WRF/WRF/lis5/data_proc/ncar_soil_tex_1KM.1gd4r. It works the same as the STATSGO texture file in that it has 16 soil texture classes. However, the lat/lon range is the same as the other global parameter fields. I created a different version of the domdata program specifically for this dataset. You can find it in the same directory with the name: domdata_from_1km_FAO+STATSGO.F90.

Also, refer to my script on how I run the program to upscale the data to coarser resolutions than 1 km. In the same directory, you'll find my script named: upscale.data.csh

I hope this will help you!

Jon

knemunai *50 posts since*
Apr 16, 2008 13. **Re: Prep for future LIS-WRF runs** Sep 3, 2008 10:02 AM

in response to: jonc Jon,

Unfortunately I don't have access to any of the NASA computers anymore and I'm running on Oklahoma's system. Are you aware of any ftp access?

-Kodi

jonc *33 posts since*
Sep 20, 2007 14. **Re: Prep for future LIS-WRF runs** Sep 3, 2008 10:17 AM

in response to: knemunai

Kodi,

I just posted the file kodi.tar at:

ftp://ftp.nsstc.org/outgoing/casejl/

You should be able to anonymously login to copy this file.

Good luck!

Jon

knemunai *50 posts since*
Apr 16, 2008 15. **Re: Prep for future LIS-WRF runs** Sep 3, 2008 10:20 AM

in response to: jonc Jon,

Downloading right now. Thank you so much!

-Kodi

knemunai *50 posts since*
Apr 16, 2008 16. **Re: Prep for future LIS-WRF runs** Sep 3, 2008 3:27 PM

in response to: knemunai Jon,

Is this mapped to the UMD land mask? I just want to make sure I know what I'm using.

-Kodi

jonc *33 posts since*
Sep 20, 2007 17. **Re: Prep for future LIS-WRF runs** Sep 3, 2008 3:52 PM

in response to: knemunai

Kodi,

This is mapped to the USGS landmask, same as the WRF model.

Jon

knemunai *50 posts since Apr 16, 2008* 18. **Re: Prep for future LIS-WRF runs** Sep 3, 2008 4:36 PM

in response to: jonc Question for anyone running LIS-WRF: Do I have to use the USGS land mask for all LIS-WRF runs or can I use the UMD mask?

Thanks in advance,

Kodi